EFFECTS OF MODEL-LEAD-TEST AND BLENDED LEARNING INSTRUCTIONAL STRATEGIES ON UPPER BASIC STUDENTS' INTEREST IN ALGEBRA

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Abstract

This study was conducted to ascertain the effect of model-lead-test and blended learning instructional strategies on upper basic students' interest in algebra in North-West Senatorial District, Benue State, Nigeria. Two research questions were generated and two null hypotheses were formulated and tested at 0.05 level significance. The study employed pretest-posttest experimental control group design. The study population was 16,093(7,350 male and 8,743 female) at the Upper Basic 2 level. A sample of 118 students was drawn using multi-stage sampling. The sampling includes purposive sampling and simple random sampling procedures. The sample consisted of 118 Upper Basic 2 students (53 males and 65 females) from two classes in the two sampled schools. Instrument used for data collection was Students' Algebra Interest Inventory (SAII) consisted of 30 items. The instrument was constructed by the researchers and face validated by the specialists in the field of mathematics Education, Measurement and evaluation, Benue State University, Makurdi. The SAII was administered to students as pre-test and post-test. The data obtained were analyzed using descriptive statistics of mean and standard deviation to answer the research questions and inferential statistics of Analysis of Covariance (ANCOVA) to test the null hypotheses. The findings showed that there *is significant difference in the mean interest ratings of upper basic 2 students taught algebra using model-lead-test, blended-learning instructional strategies and discussion method ($F_{2,114} = 6.525$; $p = 0.002 < 0.05$). It was also found that there is no significant difference in the mean interest ratings between male and female upper basic 2 students taught algebra using model-lead-test strategy ($F_{1,30} = 0.001$; $p = 0.975 > 0.05$). Based on the findings, it was recommended among others that model-lead-test and blended learning strategies should be encouraged for teaching and learning algebrain schools.*

Keywords: Model-lead-test, Blended Learning, Interest, Algebra and Gender

Introduction

The world is primarily designed and organized by the overpowering influence of science and technology with the study of Mathematics as a pivot. This is perhaps in appreciation of the essential role of Mathematics in recognising the nation's dream of rapid scientific and technological development. Mathematics is all around us in everything we do. It is the building block for everything in our daily lives including mobile devices, architecture (ancient and modern), arts, banking, finance, industries, engineering,

sports, medicine, natural science, social sciences and computer technology. Cooks, farmers, carpenters, mechanics, store keepers, doctors, engineers, scientists and musicians need Mathematics in their day-to-day life (Guwahati, 2015).

The teaching and learning of Mathematics at the basic level of education is central to producing a just and egalitarian responsible citizen. This is one of the major goals of the Nigerian educational system. This is why Mathematics is made compulsory for all learners at nursery, primary and secondary school levels where children's attitude, perspective and values are formed. Therefore, the importance of Mathematics cannot be over-emphasized. Uloko and Usman (2018) see Mathematics as the development of skills with which man equips himself in solving problems in a rational manner and the ability to think critically and reflectively. Mathematics could make life orderly and prevents chaos because it helps in the development of mental faculties as mental work is needed to solve mathematical problems. The Nigerian secondary school Mathematics curriculum is developed and structured around five main concepts, namely; algebra, arithmetic, geometry, statistics and trigonometry. This study focused on algebra.

Algebra is the gateway for high-level opportunities in Mathematics. It is often the first topic in Mathematics that requires extensive abstract thinking, hence it is a challenging new skill for many students. Algebra moves students beyond an emphasis on arithmetic operations to focus on the use of symbols to represent numbers to express mathematical relationships. Knowledge of algebra is critical to students' success in future Mathematics courses, including geometry and calculus (Zakariya, 2013). A special attention was drawn to Algebra where candidates demonstrated major weaknesses; this informed the choice of algebra as a topic for the study. Algebra is a branch of Mathematics dealing with symbols and rules for manipulating those symbols. In elementary algebra, those symbols are written as Latin, and Greek letters representing quantities without fixed values known as variables. Algebra is an important life skill. It develops in students' critical thinking skills such as problem solving, logic, pattern and reasoning. It is used in many jobs. It is also a brain developer (Zakariya, 2013).

Despite its importance, candidates demonstrated weaknesses for their inability to read understand, solve world problems, the use of symbols, terms and concepts are still abstract to students as revealed by scholars (Nurthayati, Herman & Suhendra, 2017).

Teachers being the brain behind generation of students' interest and good academic performance in Mathematics, prompted the researcher to determine whether teachers' adopting innovative strategies could enhance students' interest and improve their academic performance in algebra.

In the broadest sense, algebraic thinking consists of understanding series which is needed to interpret the word by translating information or events into the language of Mathematics in order to explain and predict the phenomena (Nurthayati, Herman & Suhendra, 2017). The discoveries of the usefulness of algebra in our daily life and in all areas of Mathematics made

algebraic thinking an important set of thoughts. For example, bankers study patterns to electronically transfer funds. Again, computer experts use digit patterns and switch to give code for complex statements. All these are algebraic thinking.

The place of interest in learning is irreplaceable. Interest is an emotional disposition which stimulates one to engage in an activity, enjoy it and would want to continue to engage in the activity in the same area of study. This owes to the fact that interest by someone is a phenomenon that leads one to voluntarily be involved in the phenomenon. Interest is an individual's feeling of wanting to know or giving attention to something. A man's day-to-day life is shaped by the interest he/she has towards other members of the society, his educational and vocational adjustments. Interest is an important aspect of the affective domain. It is a central force that drives the whole machinery of the teaching-learning process. Abande (2016) opines that interest is a state of curiosity or concern about something or the attention given to something. Magnus (2018) states that interest encompasses the positive and pleasant feelings an individual has when trying to study a subject matter. Interest governs one's feelings and attitudes towards a particular thing or activity. The teacher has to ginger learners' interest in learning, intelligence, learning skills and socio-cultural condition for their effective learning and performance (Kpolovie, 2014).

Students' interest in Mathematics has been declining especially in both internal and external examinations at the basic education level. Students' low interest in Mathematics has been an educational concern in the last two decades (Adebayo, 2017). Reception of Mathematics by students and some teachers has been low and worrisome. If this ugly trend is allowed to continue, Mathematics will become nothing with decay effect in science, technology and engineering. One of the factors Mathematics researchers have identified as responsible for students' lack of interest in Mathematics is inappropriate and ineffective instructional strategies used in teaching in the subject (Guwahati, 2015).

There is need to research on model-lead-test (MLT) instructional strategy as intervention for effective teaching. The model-lead-test instructional strategy is a 3-phase teaching strategy where the teacher demonstrates the correct use of the strategy, leads the students to practice the correct use of the strategy and tests the students' independent use of the strategy. It is known as my turn-together-your turn or I do-we do-you do. The model-lead-test instructional strategy to teaching is used to provide and demonstrate frequent opportunities for students to develop and practice new cognitive and psychomotor skills. The model-lead-test instructional strategy includes three phases. These are the model phase, lead phase and test phase. The model phase is the teacher demonstrating the expected skill(s); the lead phase enables the students to practice the skill repeatedly and he/she leads them towards automatically responding as a group. The test phase measures the students' ability to perform the skill correctly and automatically. This instructional strategy provides an automatic response for teachers which support the learning needs (Itikpo, Friday & Delmang, 2021).

There is need to investigate the effectiveness of another teaching strategy as intervention for effective teaching, that is blended-learning instructional strategy. Blended-learning instructional strategy is the teaching strategy that brings together the face-to-face and online learning. It is the hybrid of the two strategies to form a blend. Blended-learning instructional strategy (BL) is that strategy that bridges the gap between the fully online learning strategy and the conventional classroom strategy. It integrates online learning with in-person instruction from the teacher. BL involves combining classroom instruction and e-learning (Kiviniemi, 2014) which is increasing in tertiary and other institutions around the world. BL has various models which include rotation model, flex model, self-blend model, and enriched-virtual model. The rotation model, is made of flipped-classroom model, lab-rotation model, station-rotation model and individual-rotation model. The model adopted for this study is the flipped- classroom model. Discussion is a method of teaching that works on the principle that many people are to put heads together in terms of knowledge and ideas to find solutions to specified problems. The activities of the discussion group are to be regulated and directed by the teacher or an appointee of the class (Yusuf, 2014). Discussion method is a teaching method which involves breaking the class into small groups for effective talking on a topic, a problem or issue. It is thinking together process in which pupils talk freely to the teacher. It is another student-centered method since students participate actively. The role of the teacher is that of a moderator. There is flow of information from teacher to student, from student to student. The teacher should not allow individuals to dominate the discussion (Yusuf, 2012). The discussion method is effective and learner-centred. Chukwurah, Abbah, Iweama, Ogugua, and Ameh (2020) reported that the discussion method is effective in teaching Physical and Health Education to junior secondary school students as it proved to improve learners' academic performances.

Gender seems to be a variable that could affect students' interest and academic performance in Mathematics. It refers to the social attributes and opportunities associated with being male or female (Ebute, 2018). Gender, interest and academic performance could differ based on the adoption of teaching strategies in Mathematics. Gender differences are issues in learning. The justification for outlining how gender differences affect academic performance of students is in ensuring equity in education. Gender has been used in many studies as a moderating variable. It is a measure of how school boys and girls respond to school work based on various indices that may be psychological, environmental, societal and/or physiological (Buckley, 2016).

It could thus be deduced that there are varying findings about effect of gender on learners' interest and academic performance in Mathematics (algebra). It becomes imperative to find out if interest in Mathematics (algebra) will differ between male and female upper basic students if exposed to model-lead- test and blended-learning instructional strategies.

The effect teaching strategies on gender has received research attention in recent times in science and Mathematics education. For example, Ugwuanyi (2012)

found that gender significantly students' interest in the group that utilizes the model-lead-test and blended-learning instructional strategies. However, Musa (2017) found no gender disparity. In view of these research inconsistencies, further studies on interaction effect of gender and model-lead-test and blended-learning instructional strategies on interest and performance in algebra becomes imperative. This study therefore ascertained the effects of model-lead-test and blended-learning instructional strategies on upper basic level students' interest in algebra in education Zone B, Benue State, Nigeria.

Statement of the Problem

The problem of effective teaching and learning of Mathematics (algebra) in Nigerian secondary schools has become a sensitive issue that needs urgent attention. It has been observed that the issue is affecting the interest and academic performance of students in both internal and external examinations adversely. Myriad of factors that impinge on students' interest and academic performance include; teacher's qualification, teacher's work load, poor teacher's salary, teacher's attitude, lack of purpose, lack of equipment or instructional materials and rigour in study. Among other factors are: large classes, practical aspect, mathematical language, syllabus, text-books and the students' attendance. Also, some other factors include lack of child-centric approach, libraries and laboratories, ban on short-cut methods and examinations. Finally, prominent among the myriad factors is non-utilization of innovative instructional strategies in the teaching and learning of Mathematics (algebra).

Evidences abound for students' lack of interest and abysmal or poor academic performance in Mathematics (algebra) at upper basic education level. This poor academic performance in Mathematics (algebra) is evidenced as indicated in reports by Benue State Examinations Board's analysis in Basic Education Certificate Examination (BECE) in Mathematics (BECE, 2018/2019-2020/2021). It is against this backdrop that the researcher investigates whether the effects of model-lead-test and blended-learning instructional strategies could effectively improve the low level of upper basic level students' interest in algebra in education Zone B, Benue State, Nigeria.

Research Questions

The following research questions guided the study:

1. what is the difference between the mean interest ratings of upper basic 2 students taught algebra using model-lead-test, blended learning and discussion instructional strategies?
2. what is the difference in the mean interest ratings between male and female upper basic 2 students taught algebra using model-lead-test instructional strategy?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance;

1. there is no significant difference between the mean interest ratings of upper basic 2 students taught algebra using model-lead-test, blended learning and those taught using discussion strategies.

2. there is no significant difference in the mean interest ratings between male and female upper basic 2 students taught algebra using model-lead-test instructional strategy.

Research Design

The study adopted quasi-experimental design specifically the non-randomized pretest-posttest control group design. This design establishes a cause and effect relationship that exists between the independent and dependent variables. The choice of the design is that, it is not possible to have a complete randomization of the subjects since intact classes were used and not randomly assigned to experimental and control groups.

The population of the study comprised 61,535 Upper Basic students from 131 UBE Junior Secondary Schools. According to Benue State Universal Basic Education Board (SUBEB), Makurdi 2018/2019 Annual School Census, there are about 131 JSS in North-West Senatorial District with a total students' population of 61,535 (26,804 male and 34,731 female) and with a population of 16,093(7,350 male and 8,743 female) at the Upper Basic 2 level.

The sample of 118 students for this study was drawn using multi-stage sampling. The sampling includes purposive sampling and simple random sampling procedures. The sample of 118 Upper Basic 2 students (53 males and 65 females) from two classes in the two sampled schools were used for the study. Students' Algebra Interest Inventory (SAII) was used for data collection.

The Interest Inventory comprises 2 sections, A and B; the first section takes care of the demographic data of the respondents while the second contains the Interest Inventory items. The second section is a 30-item interest inventory designed by the researcher on a 4-point rating scale. Fifteen of the items are positive, while fifteen items are negative. The weightings for the responses are: Strongly Agree=4, Agree=3, Disagree=2, and Strongly Disagree=1 and the coding was reversed for negatively skewed items.

The face and content validity of the instrument was carried out by three experts from the Department of Science and Mathematics Education, Benue State University Makurdi. Two of the experts were specialists in Mathematics Education while the other one was a specialist in Science Education. The experts were requested to validate the instruments based on general content validity, clarity and simplicity of language, relevance of concepts and items to research topic and objectives, scope of coverage, content relevance, and absence of ambiguity. Their judgments were used to improve the quality of the instrument.

Students' Algebra Interest Inventory (SAII) was trial-tested to establish the reliability of the instrument. The researchers used 65 Upper Basic 2 students who were not part of the schools selected for this study in the study area. Cronbach Alpha was used to ascertain the reliability index of SAII which gave reliability coefficient of 0.84. Cronbach Alpha was used for SAII because the items were polytomously scored. Emaikwu (2013) also revealed that where two items are not dichotomously scored, the use of Cronbach Alpha becomes very appropriate. The data for the study were collected before and after the administration of treatments on the subjects. A training programme for the research assistants

was organized for six days by the researchers in order to control errors that may arise as a result of teacher differences.

After successful completion of the period of training, the research assistants in the model-lead-test, blended learning and discussion instructional strategy groups proceeded to teach in their respective schools with intact classes. Pretest for SAII was administered to the intact classes for each of the groups prior to commencement of teaching. Teaching in all the groups lasted for six weeks after which posttest was administered. The use of model-lead-test instructional strategy in the present study involves 3-phase learning. The model phase is the teacher demonstrating the expected skills; the lead phase enables the students to practice the skill repeatedly and leads them towards automatically responding as a group. The test phase measures the students' ability to perform the skill correctly and independently. The teacher demonstrates the correct learning of the behavioural objectives, leads the students to practice the correct learning of the behavioural objectives, finally tests the students' attainment of the behavioural objectives.

Blended-learning instructional strategy on the other hand combines face-to-face interactions with technology-based learning. Blended-learning instructional strategy as hybrid learning that enhances reading and Mathematics instruction. Blended-learning instructional strategy is used to compensate for limited classroom space, as well as a way to think differently about encouraging students' collaboration, as a strategy to infuse new engagement opportunities, provide a transitional opportunity between fully face-to-face and fully online instruction and offer the conveniences of online learning combined with the social and instructional interactions that may not lend themselves to online delivery.

The data from the pretest and posttest were collated for analysis. Mean and standard deviation were used to answer the research questions. Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. The statistical conclusion or research conclusion with regard to the outcome of ANCOVA result was that null hypotheses were rejected if the P-value was less than or equal to 0.05 and not rejected if the p-value was greater than 0.05. Since intact classes were used, ANCOVA was most appropriate statistical tool for the analysis because it removes the initial differences among groups so that the groups could be considered equivalent (Emaikwu, 2015). ANCOVA takes care of all the covariates that make the groups not to be homogenous or equivalent.

Results

Research Question One

What is the mean difference between the interest ratings of upper basic 2 students taught algebra using model-lead-test strategy, blended learning and those taught using discussion strategy?

Table 1: Mean Interest Ratings among Upper Basic 2 Students taught Algebra using Model-Lead-Test, Blended Learning and Discussion Strategies

Strategies		PreSAII	PostSAII	Mean Gain
Model-Lead-Test	Mean	2.53	2.69	0.16
	N	33	33	
	Std. Deviation	0.20	0.05	
Blended-Learning Instructional Strategy	Mean	2.52	2.69	0.17
	N	41	41	
	Std. Deviation	0.23	0.50	
Discussion Method	Mean	2.51	2.65	0.14
	N	44	44	
	Std. Deviation	0.20	0.73	

Table 1 shows that 33 upper basic 2 students were taught algebra using model-lead-test, 41 upper basic 2 students were taught algebra using blended-learning instructional strategies while 44 Upper Basic 2 students were taught algebra using discussion method. The table reveals that the mean interest ratings of students taught algebra using model-lead-test instructional strategy 2.53 with a standard deviation of 0.20 during pre-test and 2.69 with a standard deviation of 0.05 in post-test (i.e there was homogeneity, every student was carried along). The mean interest ratings of students taught algebra using blended-learning instructional strategy is 2.52 with a standard deviation of 0.23 during pre-test and 2.69 with a standard deviation of 0.50 in posttest. The mean interest ratings of students taught algebra using discussion method is 2.51 with a standard deviation of 0.20 during pre-test and 2.65 with a standard deviation of 0.73 in post-test. The table further shows that the mean gain for model-lead-test instructional strategy is 0.16, while that of blended-learning instructional strategy is 0.17 and discussion method is 0.14.

Research Question Two

What is the difference in the mean interest ratings between male and female upper basic 2 students taught algebra using model-lead-test instructional strategy?

Table 2: Mean Interest Ratings between Male and Female Upper Basic 2 Students taught Algebra using Model-Lead-Test Instructional Strategy

Gender		PreSAII	PostSAII	Mean Gain
Male	Mean	2.49	2.69	0.20
	N	18	18	
	Std. Deviation	0.21	0.19	
Female	Mean	2.56	2.69	0.13
	N	15	15	
	Std. Deviation	0.19	0.52	
Mean difference		0.07	0.00	0.07

Table 2 shows that 18 upper basic 2 male students and 15 upper basic 2 female students were taught algebra using model-lead-test instructional strategy. The table reveals that the mean interest ratings of male students taught algebra using model-lead-test instructional strategy is 2.49 with a standard deviation of 0.21 during pre-test and 2.69 with a standard deviation of 0.19 in post-test. While the mean interest ratings of female students taught algebra using model-lead-test instructional strategy is 2.56 with a standard deviation of 0.19 during pre-test and 2.69 with a standard deviation of 0.52 in post-test. Table 2 further shows that the mean gain in interest ratings of male and female students that were taught algebra using model-lead-test instructional strategy is 0.20 and 0.13 respectively. The difference in the mean gain in interest ratings between male and female upper basic 2 students is 0.07 in favour of male students.

Hypothesis One

There is no significant difference in the mean interest ratings of upper basic 2 students taught algebra using model-lead-test, blended-learning instructional strategies and discussion method.

Table 3: ANCOVA of Interest Ratings of Upper Basic 2 Students taught Algebra using Model-Lead-Test, Blended-Learning Instructional Strategies and Discussion Method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.048[a]	3	.016	4.373	.006	.103
Intercept	5.521	1	5.521	1494.760	.000	.929
preSAII	6.660E-6	1	6.660E-6	.002	.966	.000
Strategies	.048	2	.024	6.525	.002	.103
Error	.421	114	.004			
Total	846.332	118				
Corrected Total	.469	117				

a. R Squared = .103 (Adjusted R Squared = .080)

Table 3 reveals that $F(2,114) = 6.525$; $p = 0.002 < 0.05$. The test statistic is significant. Thus, the null hypothesis is rejected. This implies that there is significant difference in the mean interest ratings of upper basic 2 students taught algebra using model-lead-test, blended-learning instructional strategies and discussion method. The partial Eta square of 0.103 was obtained for the strategies meaning that 10.3% of upper basic 2 students' interest can be accounted for by the strategies.

Table 4: Comparisons of Mean Interest Ratings of Upper Basic 2 Students taught Algebra using Model-Lead-Test, Blended-Learning Instructional Strategies and Discussion Method
Dependent Variable: postSAII

(I) instructional strategies for teaching algebra	(J) instructional strategies for teaching algebra	Mean Difference (I-J)	Std. Error	Sig.[b]
Model-lead-test instructional strategy	Blended-learning instructional strategy	.003	.014	.996
	Discussion method	.043*	.014	.007
Blended-learning instructional strategy	Model-lead-test instructional strategy	-.003	.014	.996
	Discussion method	.041*	.013	.008

Table 4 shows that P=0.996 > 0.05 for model-lead-test and blended-learning instructional strategy. However, comparisons of the strategies of teaching algebra and its effect on the mean interest ratings of students at P = 0.007 < 0.05 for model-lead-test and discussion method. Similarly, comparisons of the strategies of teaching algebra and its effect on the mean interest ratings of students at P= 0.008 < 0.05 for blended-learning instructional strategies and discussion method. Therefore, the rejected null hypothesis is confirmed and upheld. This implies that there is significant difference in the mean interest ratings of upper basic 2 students taught algebra using model-lead-test, blended-learning instructional strategies and discussion method.

Hypothesis Two

There is no significant difference in the mean interest ratings between male and female upper basic 2 students taught algebra using model-lead-test instructional strategy.

Table 4: ANCOVA of Interest Ratings between Male and Female Upper Basic 2 Students taught Algebra using Model-Lead-Test Strategy

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.001[a]	2	.000	.119	.889	.008
Intercept	1.510	1	1.510	524.656	.000	.946
preSAIIM	.001	1	.001	.223	.640	.007
Gender	2.809	1	2.809	.001	.975	.000
Error	.086	30	.003			
Total	239.686	33				
Corrected Total	.087	32				

a. R Squared = .008 (Adjusted R Squared = -.058)

Table 4 reveals that F(1,30) = 0.001; p = 0.975 > 0.05. This implies that the test statistic is not significant. Thus, the null hypothesis is not rejected. This implies that there is no significant difference in the mean interest ratings between male and female upper basic 2 students taught algebra using model-lead-test strategy. The partial Eta square of 0.000 is obtained for the gender meaning that there is no gender discrepancy in model-lead-test strategy class.

Discussion of Findings

Finding revealed that there is significant difference in the mean interest ratings of upper basic 2 students taught algebra using model-lead-test, blended-learning instructional strategies and discussion method. The bivariate comparisons of the strategies of teaching algebra and its effect on the mean interest ratings of students confirmed and upheld the rejected null hypothesis. This implies that algebra could be better taught using model-lead-test and blended-learning instructional strategies than discussion method. The finding agrees with that of Anari (2021) that the mean interest of students taught with blended-learning strategy was significantly better than those instructed with simulation and expository strategies.

The finding concurs with that of Itikpo, Friday and Ebele (2021) that there was a significant effect of model-lead-test strategy (experimental treatment) on male students' interest in hydrocarbon aspect of Organic Chemistry and that there was a significant effect of model-lead-test instructional strategy (experimental treatment) on female students' interest in Organic Chemistry. The finding is in consonance with that of Adeleye and Omotayo (2020) that the use of spaced learning and blended-learning instructional strategy enhanced the interest of students in Biology than the conventional strategy. The finding agrees with that of Selvakumar, Sivakumar and Daphine (2020) carried out a study on influence of blended-learning instructional strategy on learning science and found significant effect in favour of the experimental group. The finding also agrees with that of Osman and Hamzah (2020) that students have higher level of interest and motivation when participating in blended-learning classes.

The study found no significant difference in the mean interest ratings between male and female upper basic 2 students taught algebra using model-lead-test strategy. This means that the use of model-lead-test instructional strategy is not gender sensitive with respect to upper basic 2 male and female students mean interest ratings. This is because the model-lead-test instructional strategy is on my turn-together-your turn or I do-we do- you do. This was found to be highly effective in promoting active students' engagement and generating students' interest irrespective of their gender. This finding agrees with that of Itikpo, Friday and Ebele (2021) who found no gender disparity in students' interest when taught using model-lead-test strategy. The agreement of these findings could be due to the fact that model-lead-test strategy fosters curiosity and active learning of students regardless of gender. This implies that model-lead-test strategy can reduce interest gaps between male and female students in algebra.

Conclusion

The study concluded that the use of model-lead-test and blended-learning instructional strategies greatly arouse students' interest in learning algebra than when discussion method was used. This implies that if Mathematics teachers use model-lead-test and blended-learning instructional strategies in teaching, the issue of lack of interest in algebra in Mathematics will be a thing of the past. The study revealed that there is no gender disparity in students' interest in learning algebra with the use of model-lead-test and blended-learning instructional strategies at the upper basic 2 level.

Recommendations

The following recommendations were made in the light of the findings of this study:

1. To stimulate and sustained interest of students in algebra, Mathematics teachers are encouraged to use model-lead-test and blended-learning instructional strategies that are learner-centred.
2. In-service seminars, workshops and symposia should be organized for training of Mathematics teachers on the use of model-lead-test and blended-learning instructional strategies.
3. Teacher training institutions like Colleges of Education, National Teachers' Institute (NTI) and Faculties of Education of Universities should train pre-service teachers in the use of model-lead-test and blended instructional strategies.

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